



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Re: Application of: **Stefan Oliver CZERNER**  
Serial No.: 10/556,644 Confirmation No.: 8517  
Filed: January 12, 2006  
For: **METHOD FOR HEATING COMPONENTS**  
Art Unit: 3742  
Examiner: Samuel L. Heinrich  
Customer No.: 23280  
Atty. Docket: 5038.1018  
Customer No.: 23280

Mail Stop: APPEAL BRIEF – PATENTS  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

February 4, 2010

**APPELLANT'S BRIEF UNDER 37 C.F.R. § 41.37**

Sir:

Appellant submits this brief for the consideration of the Board of Patent Appeals and Interferences (the "Board") in support of their appeal of the Final Rejection dated July 8, 2009 in this application. The statutory fee of \$540.00 for filing an appeal brief is paid concurrently herewith.

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## REAL PARTY IN INTEREST

The real party in interest is MTU Aero Engines GmbH, a corporation having a place of business in Muenchen, Germany and the assignee of the entire right, title and interest in the above-identified patent application. The invention was assigned to MTU Aero Engines GmbH by an assignment from inventors Stefan Oliver CZERNER and Klaus EMILJANOW. The assignment was recorded on January 12, 2006 at reel 017436 frame 0459.

## I. RELATED APPEALS AND INTERFERENCES

Appellant, his legal representatives, and assignee are not aware of any appeal, interference or judicial proceeding that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

## II. STATUS OF CLAIMS

Claims 1 to 10 and 22 were cancelled. Claims 11 to 21 are pending. Claims 11 to 21 have been finally rejected as per the Final Office Action dated July 8, 2009.

The rejections to claims 11 to 21 thus are appealed. A copy of pending claims 11 to 21 is attached hereto as Appendix A.

## III. STATUS OF AMENDMENTS AFTER FINAL

No amendments to the claims were filed after the final rejection. A Notice of Appeal was filed on December 2, 2009 and received by the U.S.P.T.O. on December 4, 2009.

## IV. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 11 recites a method for processing one or more components of gas turbines (see, e.g. paragraph [0014]), comprising heating a component (see, e.g. paragraph [0014], and 10 in Fig. 1) of a gas turbine (see, e.g. paragraph [0014]) with at least one laser device (see, e.g. paragraph [0017]); and laser hardfacing (see, e.g. paragraph [0026]), the

component with a separate laser device (see, e.g. paragraph [0027]), the heating occurring prior to and/or during the laser hardfacing (see, e.g. paragraph [0027]).

Dependent Claim 15 recites the method as recited in Claim 11, further comprising adjusting angles of incidence (see, e.g. paragraph [0020]; and e.g. Fig. 3) at which laser radiation (see, e.g. paragraph [0020]; and e.g. 17 and 18 in Fig. 3) hit a surface of the component to the contour of said surface (see, e.g. paragraph [0020]; and e.g. Fig. 3).

Dependent Claim 16 recites the method as recited in Claim 14, further comprising adjusting angles of incidence (see, e.g. paragraph [0020]; and e.g. Fig. 3) at which laser radiation from the plurality of laser devices (see, e.g. paragraph [0020]; and e.g. 17, 18, 19, 20 in Fig. 3) hit a plurality of surfaces of the component to the contour of each surface (see, e.g. paragraph [0020]; and e.g. Fig. 3).

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 11 and 12 should have been rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of JP 58-106836 (Aoshima et al.) in view of U.S. Patent No. 4,539,462 (Plankenhorn).

Whether claims 13 and 14 should have been rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Aoshima et al., in view of Plankenhorn and further in view of U.S. Patent No. 4,857,699 (Duley et al.) and in view of JP 63-149092 (Tada).

Whether claim 15 should have been rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Aoshima et al. in view of Plankenhorn and further in view of U.S. Patent No. 5,080,474 (Miyamoto).

Whether claim 16 should have been rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Aoshima et al. in view of

Plankenhorn, in view of Duley et al., and in view of Tada and further in view of Miyamoto.

Whether claims 17 and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Aoshima et al. in view of Plankenhorn and further in view of DE 42 34 339 (Deinzer et al.).

Whether claim 18 should have been rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Aoshima et al., in view of Plankenhorn, in view of Duley et al. and in view of Tada, and further in view of Deinzer et al.

Whether claim 20 should have rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Aoshima et al. in view of Plankenhorn and further in view of U.S. Patent No. 6,883,405 (Strauch).

Whether claim 21 should have been rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Aoshima et al. in view of Plankenhorn and further in view of U.S. Patent 5,493,445 (Sexton).

## VII. ARGUMENTS

### **REJECTIONS UNDER 35 U.S.C. §103(a)**

Claims 11 and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of JP 58-106836 (Aoshima et al.) in view of U.S. Patent No. 4,539,462 (Plankenhorn).

Claim 11 recites "heating a component of a gas turbine with at least one laser device; and laser hardfacing the component with a separate laser device, the heating occurring prior to and/or during the laser hardfacing."

These are two separate steps requiring two different lasers, and admittedly the APA does not disclose either of these steps. Tellingly, the Final Office Action fails to state what part of the claim is not found in the APA, as is required by the MPEP and fails to address the actual claim language.

It is respectfully submitted that the Final Office Action is in error, in that it does not address why or how one of skill in the art would provide any missing feature to the APA.

In any event, laser hardfacing is not the same as hardening or annealing, and the Aoshima and Plankenhorn references also do not disclose laser hardfacing any component. For example, the McGraw Hill Dictionary of Scientific and Technical terms (Fifth Edition) defines hard-face as “to apply a layer of hard abrasive-resistant metal to a less resistant metal part by plating, welding, spraying or other techniques.” The Advisory Action argument regarding hardening thus is not understood, and even a combination of APA and Aoshima and Plankenhorn would not result in the present invention as claimed. At a minimum, a new Office Action addressing the actual claim language is respectfully requested, rather than an Examiner’s Answer which for the first time addresses the actual claim language.

However, it is respectfully submitted that claim 11 is allowable over the prior art of record and Applicants request such action.

In view of the above withdrawal of the rejection to all pending claims 11 to 21 is respectfully requested.

#### CLAIM 15 : ARGUED SEPARATELY

Claim 15 was rejected under 35 U.S.C. §103(a) as being unpatentable over applicants’ admitted prior art in view of Aoshima et al. in view of Plankenhorn and further in view of U.S. Patent No. 5,080,474 (Miyamoto).

With further respect to claim 15, claim 15 recites “adjusting angles of incidence at which laser radiation hit a surface of the component to the contour of said surface.” Miyamoto shapes beams but these are not adjusted “to the contour of said surface.” See, e.g., 6a of Miyamoto with its flat surface. The Advisory Action still does not address the contour language, and Miyamoto adjust the angle of incidence without reference to any contour. The present invention, as described at [0018] for example advantageously adjusts the angles to the contour, for example to the contour of a turbine blade.

Withdrawal of the rejection to claim 15 for this reason as well is respectfully requested.

#### CLAIM 16: ARGUED SEPARATELY

Claim 16 was rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Aoshima et al. in view of Plankenhorn, in view of Duley et al., and in view of Tada and further in view of Miyamoto.

Claim 16 recites "adjusting angles of incidence at which laser radiation from the plurality of laser devices hit a plurality of surfaces of the component to the contour of each surface." As discussed above with respect to claim 15, Miyamoto does not disclose this feature even for a single surface, much less a plurality of surfaces as recited in claim 16. With respect to the Advisory Action argument, there still is no reason to combine or provide the acclaimed plurality given at all in the Final Office Action or Advisory Action except for improper hindsight.

Withdrawal of the rejection to claim 16 for this reason as well is respectfully requested.

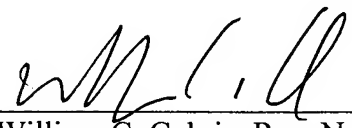
CONCLUSION

It is respectfully submitted that the application is in condition for allowance. Favorable consideration of this appeal brief is respectfully requested.

Respectfully submitted,

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Dated: February 4, 2010

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**APPENDIX A:**

PENDING CLAIMS 20 to 40  
U.S. APPLICATION SERIAL NO. 10/540,203

**Listing of Claims:**

Claim 11 (previously presented): A method for processing one or more components of gas turbines, comprising:

heating a component of a gas turbine with at least one laser device; and  
laser hardfacing the component with a separate laser device, the heating occurring prior to and/or during the laser hardfacing.

Claim 12 (previously presented): The method as recited in Claim 11, wherein the component is irradiated at least on one side by the at least one laser device.

Claim 13 (previously presented): The method as recited in Claim 11, wherein the at least one laser device includes a first laser device and a second laser device, and wherein the step of heating comprises irradiating the component on two sides from two irradiation directions using laser radiation, the first laser device being used for one irradiation direction and the second laser device being used for the other irradiation direction.

Claim 14 (previously presented): The method as recited in Claim 11, wherein the at least one laser device includes a plurality of laser devices, and wherein the step of heating comprises irradiating the components on all sides from multiple irradiation directions using laser radiation, one laser device being used for each irradiation direction.

Claim 15 (previously presented): The method as recited in Claim 11, further comprising adjusting angles of incidence at which laser radiation hit a surface of the component to the contour of said surface.



Claim 16 (previously presented): The method as recited in Claim 14, further comprising adjusting angles of incidence at which laser radiation from the plurality of laser devices hit a plurality of surfaces of the component to the contour of each surface.

Claim 17 (previously presented): The method as recited in Claim 11, further comprising measuring a temperature of the component, and, as a function thereof, adjusting such the power of the laser device to achieve an intended temperature setpoint value.

Claim 18 (previously presented): The method as recited in Claim 14, further comprising measuring a temperature of the component, and, as a function thereof, adjusting such the power of each laser device to achieve an intended temperature setpoint value.

Claim 19 (previously presented): The method as recited in Claim 17, wherein the heating and measuring steps are performed without contacting the component.

Claim 20 (previously presented): The method as recited in Claim 11, wherein one or multiple diode laser(s) are used as the at least one laser device.

Claim 21 (previously presented): The method as recited in Claim 11, further comprising subjecting the component to further processing after or during heating.

## **APPENDIX B**

### Evidence Appendix under 37 C.F.R. §41.37 (c) (ix):

No evidence pursuant to 37 C.F.R. §§1.130, 1.131 or 1.132 and relied upon in the appeal has been submitted by appellants or entered by the examiner.

## APPENDIX C

### Related proceedings appendix under 37 C.F.R. §41.37 (c) (x):

As stated in “2. RELATED APPEALS AND INTERFERENCES” of this appeal brief, appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board’s decision in this appeal.